Two new species of the family Cornirostridae (Gastropoda: Heterobranchia: Valvatoidea) from Senegal (West Africa)

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ABSTRACT. Two new species of the genus *Tomura* collected in sediment from Dakar are described and compared with the species previously known from West Africa. A list of the species of Cornirostridae is compiled with indication of the distribution area.

INTRODUCTION

The genus *Tomura* was described by Pilsbry & McGinty (1946) as a subgenus of *Vitrinella* due to the great similarity in the characters of their shells. They figured the animal of the new species *Tomura bicaudata* with an anteriorly bifurcated foot.

Moore (1964) doubted the placement of this genus in Vitrinellidae because of the scarce presence of the cephalic tentacle represented in the original figure (Pilsbry & McGinty, 1946).

Ponder (1990: 554) introduced the family Cornirostridae with two monotypical genera: *Cornirostra* (type species *Microdiscula pellucida* Laseron, 1954) and *Tomura* [type species *Vitrinella* (*Tomura*) *bicaudata* Pilsbry & McGinty, 1946], giving no formal diagnosis of the genera, but showing numerous morphological differences and similarities with freshwater Valvatidae.

Warén, Gofas & Schander (1993: 2) presented the morphologic characters of Cornirostridae, discussing and correcting the radular characteristics of *Skeneopsis pellucida* (Laseron, 1954) and *Tomura bicaudata,* assigning *Skeneopsis pellucida* to the genus *Xenoskenea* Warén & Gofas, 1993, which is included in the family Hyalogyrinidae Warén & Bouchet, 1992.

Rubio & Rolán (1998) described *Tomura xenoskenoides* from Yucatan, Mexico, presenting anatomical and radular information.

Bieler, Ball & Mikkelsen (1998) described *Cornirostra floridana* from Florida Cays (USA), adding a detailed anatomical study. The anatomical and morphological characters of the shell of the animal of the seven species known from live taken specimens were shown in a table, and the generic and family diagnosis were discussed. The shells and soft parts of the family were redefined: "small (<2.3 mm) valvatoideans with (almost) smooth skeneiform teleoconchs of 2-3 more-or-less convex whorls and simple peristome, and (weakly) sinistral protoconchs coiling around the same axis (this larval hyperstrophy might not be expressed if only protoconch I (embryonic shell) is present, e.g., *Noerrevangia*); snout long, with two tentacle-like oral lobes; radula with 7-9 teeth per row including 2-3 partly overlapping lateral teeth, and rachidian with highly developed lateral support; foot with propodial and metapodial extensions, cleft anteriorly and posteriorly; single right pallial tentacle; bipectinate, basally attached gill; hermaphroditic reproductive system with cephalic penis".

The first species of the genus *Tomura* recorded for the North African coast by Rubio-Salazar (1990) was *Oxystele depressa* Granata, 1877 (from which *Tharsiella tinostomoides* Fekih & Gougerot, 1977 is a synonym). It is a typically Mediterranean species, Rabat (Morocco) being its southernmost record. Fukuda & Yamasita (1993) described two new species from Japan.

There were no new additions to the genus until Rolán & Rubio (1999) described *Tomura abscondita* as a new species from the Cape Verde Archipelago.

In sediment samples collected in recent years by the senior author, several shells of two unidentified species of *Tomura* were found. Being different from the previously known species, they are described as new for science.

Abbreviations

AMNH: American Museum of Natural History, New York, USA.
BMNH: The Natural History Museum, London, UK.
MHNS: Museo de Historia Natural "Luis Iglesias", Santiago de Compostela, Spain.
MNHN: Museum national d'Histoire naturelle, Paris, France.
MNCN: Museo Nacional de Ciencias Naturales, Madrid, Spain.
MCZ: Museum of Comparative Zoology, Cambridge, U.K.
USNM: National Museum of Natural History, Washington D. C., USA.
ZSM: Zoologische Staatssammlung, München, Germany.
CJH: collection of José María Hernández, Gran Canaria.

SYSTEMATICS

Subclass **HETEROBRANCHIA**
Superfamily **VALVATOIDEA** Gray, 1840
Family **CORNIROSTRIDAE** Ponder, 1990
Genus ***Tomura*** Pilsbry & McGinty, 1946
Type species: *Vitrinella (Tomura) bicaudata* Pilsbry & McGinty, 1946 by monotypy.

Diagnosis (after Pilsbry & McGinty, 1946). Shell orbicular, depressed, polished, last whorl rounded at the periphery; umbilical region covered with a large, flat callus; aperture transverse, rounded, greatly produced and elongated, ending anteriorly in a slightly canaliculate point; inner lip smooth, callous, not emarginate or truncate anteriorly; outer lip thin, simple, not marginated or reflected.

Remarks. According to Warén et al. (1993), the species of Cornirostridae are nearly similar to those of Vitrinellidae in shell characters. Some species, like *Tomura depressa* can be recognized as belonging to Heterobranchia, by their heterostrophic larval shell, but a radular study is required to confirm its family placement. This character is more evident in some species of the genus *Tomura* (as T. *depressa* and *T. ascondita*) and less so in *T. bicaudata*.

Tomura sphaerica sp. nov.
Figs 1-13

Type material. Holotype (Fig. 1) deposited in the MNCN 15.05/47.523. Paratypes in the following collections: 1 (Fig. 5) AMNH, 1 BMNH 20080187, 1 (Fig. 4) USNM 1112470, 1 ZSM, 1 CJH, 2 (Figs. 2-4, 6-9) MHNS, all of them from the type locality; 2 MNHN 20845, from Ivory Coast.

Type locality. Senegal, Dakar Bay, between 15 and 40 m.
Etymology. The specific name refers to the almost spherical shape of the shell.

Description. Shell (Figs 1-9) small, rather sturdily built, almost spherical, subovate in outline, weakly depressed, quite smooth, slightly glassy, white. The upper surface is convex. The protoconch (Figs 10-11), hyperstrophic, small, with ¾ of whorl, apparently smooth; its diameter is of about 190 µm. Protoconch I partially visible, separated from the Protoconch II by a strong axial rib. The teleoconch has between 2.15-2.25 whorls in adult specimens. The spire increases uniformly. The suture is clear but not deep and a slight depression appears below it. The aperture (Fig. 1) is almost circular, slightly pyriform; the columella strongly curved, a little angled and opisthocline. There is a short callus which totally covers the umbilicus. The apertural border is sharp and the peristome continuous, a little wider at the base. The surface of the shell is covered with numerous very fine spiral striae, and axial growth lines which form some folds near the base. Under high magnification there can be seen that the spiral striation is formed by very small, impressed, irregular and poorly limited cords (Figs 12-13) which are more evident on the upper part of the whorls.
Holotype: height 0.84 mm, width 0.94 mm. Dimensions of the largest specimens 1.0 x 1.1 mm.
Soft parts unknown.

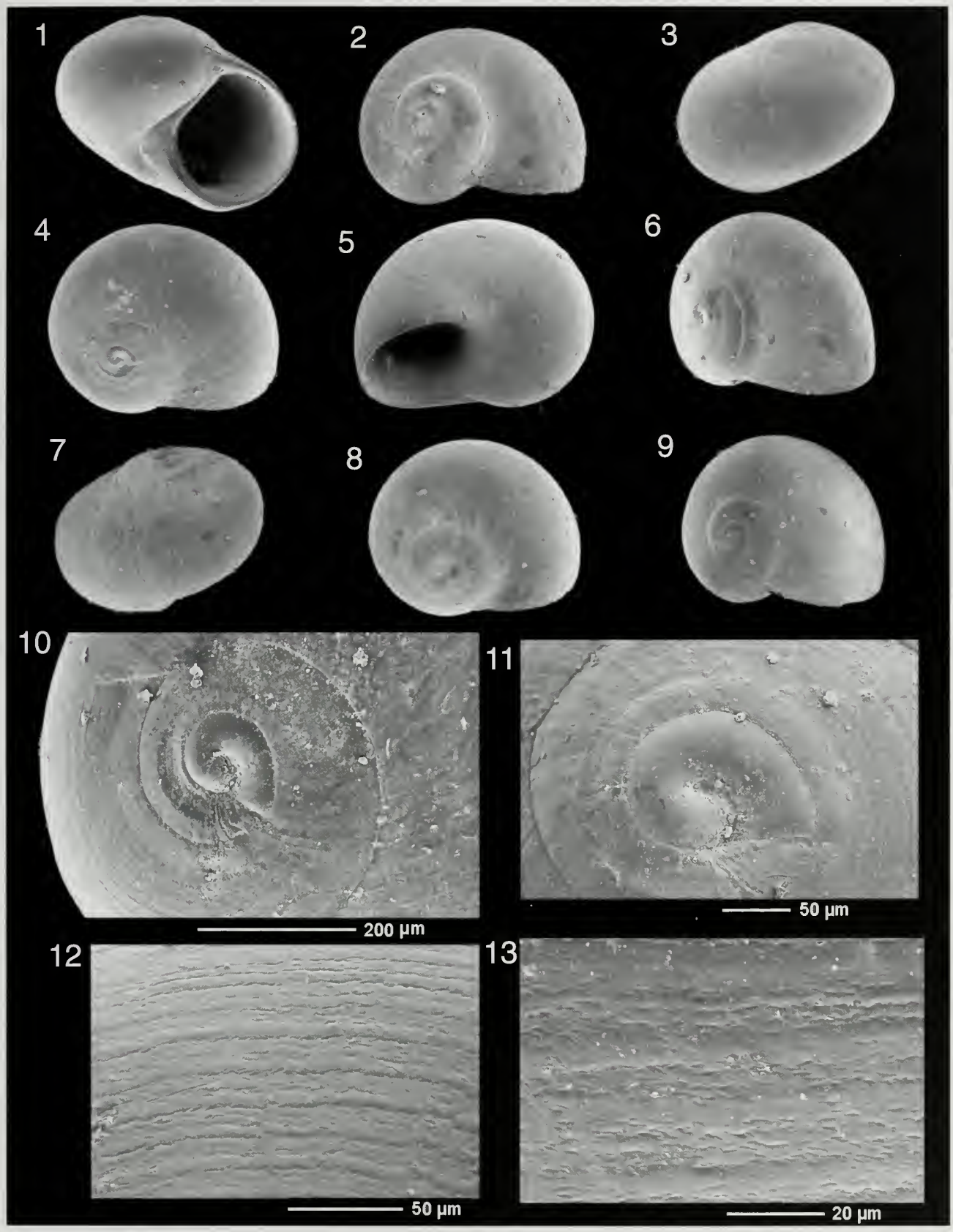
Remarks. *Tomura sphaerica* differs from *T. depressa*, by its smaller size, the more globose shape of its shell and by having its entire surface covered by spiral threads.
It can be separated from *T. abscondita* because the callus formed by the thickening of its internal lip completely covers the umbilicus.
It differs from *T. bicaudata* by its sculpture and the lack of a periumbilical cord.

Tomura umbiliobsessa sp. nov.
Figs 14-23

Type material. Holotype (Fig. 14) deposited in the MNCN 15.05/47.524. Paratypes in the following

Figures 1-13. ***Tomura sphaerica*** **sp. nov.,** Dakar, Senegal.

1. holotype, 0.94 mm (MNCN 15.05/47.523); **2-3.** paratypes, 1.09, 0.98 mm (MHNS); **4.** paratype, 1.05 mm (USNM); **5.** paratype, 1.03 mm (AMNH); **6-9.** paratypes, 1.10, 1.05, 0.96, 1.01 mm (MHNS); **10-11.** protoconch; **12.** microsculpture on the shell on its dorsal part; **13.** microsculpture in ventral part.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collections: 1 (Fig. 16) AMNH; 1 BMNH 20080188; 1 MNHN 20844; 1 USNM 1112469; 1 ZSM; 3 CJH and 4 (Figs. 17-20) MHNS. All from the type locality.

Type locality. Senegal, Dakar Bay, between 20 and 40 m.

Etymology. The specific name is formed by the fusion of the two Latin words, *umbilicus* and *obsessa* "which makes blockade", alluding to the partial obstruction of the umbilicus by the callus.

Description. Shell (Figs 14-20) small, sturdily built, depressed, smooth, not glassy, dorsally with a circular outline, whitish. The hyperstrophic protoconch (Fig. 21), is small with about one apparently smooth whorl, with a diameter of about 160 µm. The teleoconch is about 2.25 whorls in adult specimens. The last whorl is regularly convex and the spire is only very slightly elevated. The suture is evident but shallow. The aperture is almost circular, the columella is regularly curved. It spreads both towards the base and the umbilicus, more noticeably in mature specimens. The umbilicus is not covered, being limited by a prominent fold of the widened columella. The apertural border is narrow except in the place of the two enlargements. The external surface (Figs 22-23) of the shell, seems smooth, but when magnification it becomes obvious that it is totally covered with small threads, more evident on the lower part of the shell, with pits in the intervals. These threads are crossed by growth lines.
Holotype: height 0.8 mm, width 1.04 mm. Largest specimen: 1.15 mm width.
Soft parts unknown.

Remarks. The general aspect, protoconch, columella and inner lip of this species are very similar to those of *Tomura bicaudata*, from which it is different by its smaller size and microsculpture formed by spiral threads with small pits in their interspaces.
It can be separated from T. *depressa* by its smaller size, the peculiar microsculpture and an open umbilicus not totally covered by callus.
From *T. abscondita* it can be separated by its microsculpture and a more evident periumbilical angulation.
From T. *sphaerica*, for being less globose, having an open umbilicus and small pits in the microsculpture.

Discussion

The species known in the family Cornirostridae are the following:

Cornirostra pellucida (Laseron, 1954)- Mediterranean.
Cornirostra floridana Bieler & Mikkelsen, 1998- Florida Keys, USA.

Tomura bicaudata (Pilsbry & McGinty, 1946)- Florida Keys, USA.
Tomura xenoskenoides Rubio & Rolán, 1998- Yucatán, Mexico.
Tomura depressa (Granata,1877)- Mediterranean Sea, W. Africa.
Tomura abscondita Rolán & Rubio, 1999- Cape Verde Archipelago.
Tomura sphaerica spec. nov.- Senegal.
Tomura umbiliobsessa spec. nov.- Senegal.
Tomura yashima Fukuda & Yamashita, 1997- Seto Inland Sea, Japan.
Tomura himeshima Fukuda & Yamashita, 1997- Seto Inland Sea, Japan.
Noerrevangia fragilis Warén & Schander, 1993- Faroe Islands.

Hyalogyrinidae
Xenoskenea pellucida (Monterosato, 1874)- Mediterranean.

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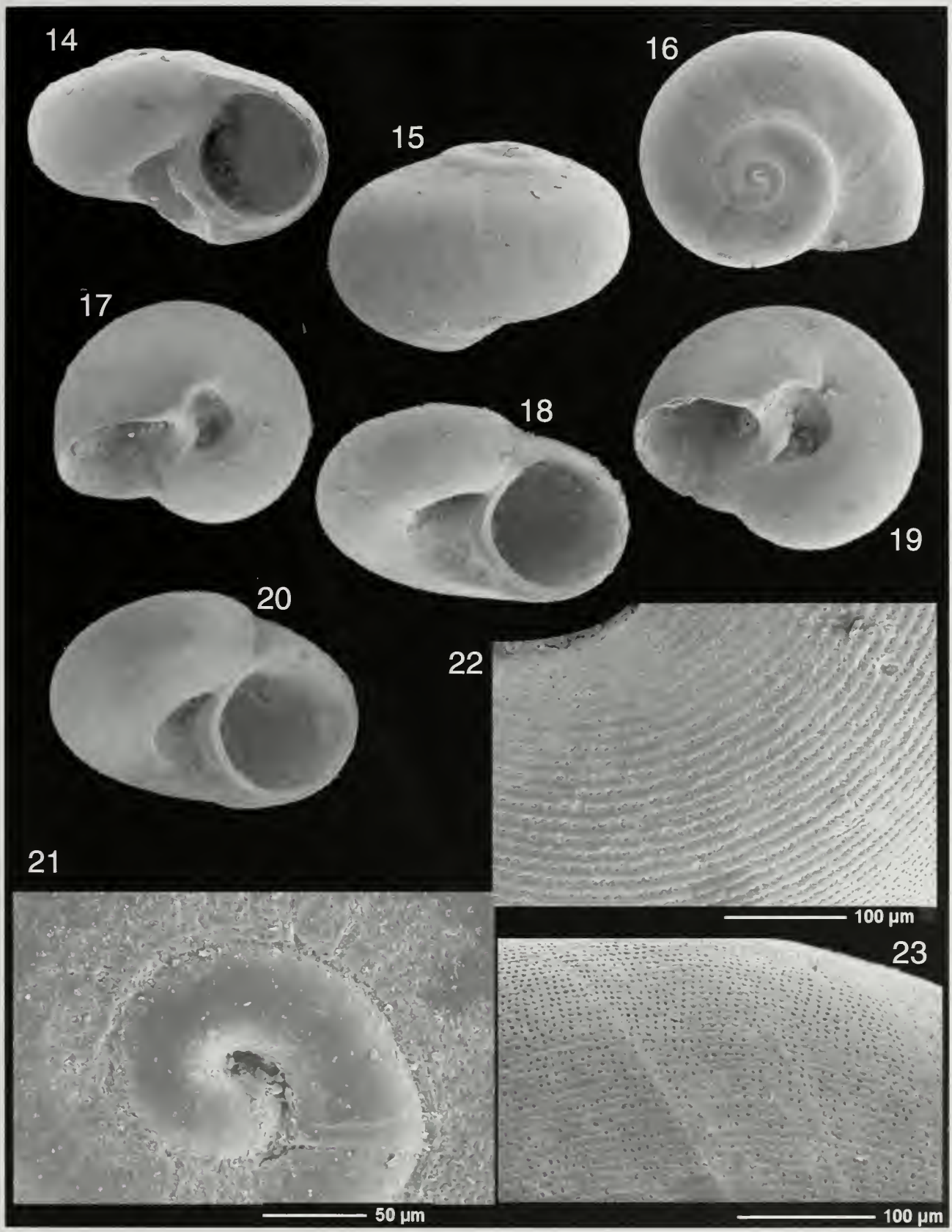
Figures 14-23. ***Tomura umbiliobsessa*** **spec. nov.,** Dakar, Senegal.

14. holotype, 1.04 mm (MNCN 15.05/47.524); **15.** paratype, 1.06 mm (CJH); **16.** paratype, 1.15 mm (AMNH); **17.** paratype, 0.95 mm (MHNS); **18.** paratype, 1.10 mm (MHNS); **19.** paratype, 1.05 mm (MHNS); **20.** paratype, 0.90 mm (MHNS); **21.** protoconch; **22.** microsculpture of ventral part; 23. microsculpture of dorsal part.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21
22
23
100 µm
50 µm
100 µm

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